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Eye Trauma Management—OIF Clinical Considerations

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Deployed ophthalmologists in combat support hospitals in Iraq and Afghanistan, backed by subspecialty care in military medical centers across the country, are continuing to provide eye trauma care to deployed troops and injured civilians via a complex aero-medical evacuation system. Whenever possible this involves cooperation with local resources to provide civilian trauma care and follow-up. In contrast to Iraq which had a developed medical system before this conflict, the deployed ophthalmologist in Afghanistan represents the highest level of surgical eye care in the country and thus must employ a full range of skills to provide local eye trauma care to injured civilians, in addition to coalition combat wounded.

The general principles of trauma eye care in the military setting are no different from those in civilian medical centers. Watertight closures are performed on initial presentation as there is no ocular equivalent of the delayed primary closure or damage control surgery found in other surgical disciplines. In contrast to civilian trauma, the complexity of injuries in war is much greater in large part due to the effects of blast. Multiple globe rupture sites and multiple foreign bodies are not uncommon. A study by Thach et al. revealed that injuries that sustained intraocular foreign bodies had an average of 1.7 foreign bodies per injury with a range of 1–6.

During the first four years of Operation Iraqi Freedom and Operation Enduring Freedom, deployed U.S. Army ophthalmologists have treated over 563 combat-related ocular injuries, with 331 ruptured globe repairs, 24 primary enucleations, and over 150 eyelid laceration repairs preformed to date. Blast injuries continue to represent the single most common cause of injury, representing 55% of all ocular injuries, with over 20% of the injuries occurring bilaterally. Interestingly, despite high numbers of intraocular foreign bodies there are only 2 reported cases of endophthalmitis in the database.

Although in the initial aspects of the conflict the ocular injuries accounted for approximately 14% of all combat injuries, due to a number of factors including stricter enforcement of ballistic ocular protection, the ocular injury rate now represents approximately 5% of all combat-related casualties. In 89% of the documented injuries in our database the presence of ballistic eye protection could not be documented. Based on the injury pattern and degree of injury, the vast majority of all injuries seen to date could have been prevented with the use of ballistic polycarbonate eye protection.

After surgical repair, and upon evacuation out of the theater of operations, many challenges await the injured soldier. They are reassessed and may undergo additional surgery in Germany, or are evacuated to tertiary care facilities where many undergo multiple additional subspecialty ocular rehabilitation surgeries. Visual recovery in many instances can last up to a year or longer. For soldiers who sustain significant retina trauma, rehabilitation options are limited. Current research into artificial vision holds hope for return of vision, however, no significant prototypes are expected for at least 5–10 years.

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